The Digital Supply Chain:

Challenges, Issues, Opportunities

A Proposal for a Special Issue in the *Journal of Business Logistics*

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(*Foreword to the Editors of JBL – Please note that the dates here are simply for reference – they will be changed and firmed up after conversations with the editors*)

Overview

The last five years have seen the emergence of a "perfect storm" in supply chain management – a storm that threatens to change the way in which supply chains are structured, deployed, used, and management. It is a "perfect storm" in which operational excellence is assumed to be present and in which speed and customer are critical dimensions of competitive advantage.

At the heart of these changes is a change in the key or critical resources – no longer is it capacity or materials or location – rather, it is digital and data. Consequently, this "perfect storm" has been referred to by various names – the digital supply chain, Industry 4.0, and cyber supply chains (to name a few). These changes also offer new sources of risk and chao as well as new challenges.

This perfect storm is being driven by various forces, the most important of which are:

- Changes in technology: These changes are found in hardware, software, and in data. They involve developments such as 3D Printing, Internet of Things (IoT), analytics, machine learning, blockchain technology, and big data.
- Changes in the customer base. In November 2015, in the United States, millennials (those people born between 1982 and 2004) replaced baby boomers as the major customer segment. This change brought with it several important ramifications. First, millennials were larger (about

92 million) than baby boomers (about 77 million). Second, the spending of millennials was growing while simultaneously that of baby boomers was falling. Third, and most importantly, millennials are fundamentally different customers. These are customers who are concerned about the social values of the firms from which they are buying. These are customers who expect the technology to work. These are customers who want to be "stars" in the purchases that they make and they expect to co-create/co-brand with their suppliers. These are networked individuals who are known to be researchers. They are changing the demand side of supply chains.

- Changes in how supply chains are viewed. In the past, supply chains were regarded simply in terms of their delivery capabilities. This is now changing. There is strong evidence now emerging from the business world (as can be seen in the experiences of companies such as Amazon, Apple, Unilever, P&G, and M-Tailor) that supply chains are now recognized as strategic assets and capabilities – supply chains can be and are sources of competitive advantages. This is forcing managers at all levels to re-evaluate how they view, manage, deploy, design/redesign, and measure performance.

- Changes for the manufacturing area and the internal supply chain come with the emerging practical applicability of new technologies or technologies making its breakthrough now through developments such as Big Data, asemantic web technologies, AI and Deep Learning. The B2C (Business to Consumer) world showed up the potential of those technologies yet due to the high knowledge captured in the structure of the B2B world new ways of working with those technologies will come up. The H2020/ECSEL project in Europe is trying to free this potential for digital production, life cycle management and supply chain management.

If the preceding material implies that everything will be better in the digital supply chain, that view must be strongly dispelled. There is strong evidence that the digital supply chain brings with it its own sets of threats and risks. KPMG (2018, p. 3) in a recent report on the digital supply chain, noted that the things that the same things that make these technologies so valuable also makes the organizations using them more vulnerable. To EY (2016), the digital supply chain is both an opportunity and a source of chaos. It promises to improve the speed and quality of managerial decision-making, while simultaneously being able to overwhelm the decision-maker with too much data.

Consequently, there is a need for the field to stop and assess this development – identify and explore the challenges, opportunities, and issues (many of which have gone unstated). This challenge is at the heart of this special issue.

Specifically, this special issue is interested in soliciting and publishing high quality, rigorous research papers that focuses on challenges, opportunities, and issues. Special consideration will be given to those papers that are broad-based, integrative, and strategic in nature. While it is understood that the papers submitted must focus on supply chain issues, special consideration will also be given to papers that cross boundaries and involve issues pertaining to marketing, strategy, organizational behavior, and finance. Topics suitable for special issue include:

- Big data/analytics
- Supply Chain Cyber security
- Customization within the supply chain
- Customer centric supply chains/experiential supply chains

- Enhancing supply chain visibility
- Improving responsiveness
- Innovation and the digital supply chain
- Supply chain finance, and,
- Use of platforms to enhance competitiveness.

Unique Feature of the Special Issue

This special issue seeks to solicit and publish research that is not only of interest to the academic readership but also to the practitioners. It is a fact of supply chain life that most of the innovations and breakthrough in supply chain management have come from the practitioner community. Consequently, practitioner impact and interest will play a very important role in the review and selection process. This concern is also evident in the composition of the special editorial team.

In addition, good methodology will not be sufficient. For research to be consider for this special issue, suitable papers must be balanced in that they must have: (1) interesting, well-formed research questions; (2) well-formed and appropriate theoretical frameworks; (3) appropriate methodologies; and, (4) suitable data sources.

Special Issue Editors

This special issue will be supervised by an editorial team consists of the following five people:

- Steven A. Melnyk, Michigan State University, USA; University of Newcastle (AU)
- Cheri Speier-Pero, Michigan State University, USA
- Hau Lee, Stanford University, USA
- Hans Ehm, Infineon, Germany
- Xiande Zhao, CEIBS, China.

If you have any questions, please contact Steven A. Melnyk at melnyk@msu.edu or sm994@newcastle.edu.au.

Submission Process and Due Dates

This special issue will also use a unique process for soliciting and reviewing submitted manuscripts. The process consists of 4 steps:

Initial Webinar

Date: April 30 2019

The special issue will be kicked off with a 45 minute webinar that will be held on April 30 2019 (tentative date). During this webinar, anyone who is interested can listen to the special issue editors describe the objectives, review process, and what they will be looking for in a suitable submission. There will also be time for questions and answer. Please note that you will be able to download the recorded webinar by contacting Steven A. Melnyk (Melnyk@msu.edu) for the submission/invitation link.

Abstract Submission

Date: May 15 2019

Unique to this special issue, each author interested in submitting a manuscript to this special issue will be asked to first submit a two-page single-spaced document (either A4 or letter sized paper – page margins – 1 inch) that contains the following information:

- Title
- Contact author
- Focus of the submission
- Contributions to theory/practice.

There are several reasons for this step. First, it will ensure that the papers submitted do indeed fit the charter of the special issue. Consequently, if your manuscript does not fit, you will be informed before you have invested any more time. Second, it will enable the editors to see how the various manuscripts "fit" together. Third, it will enable the editors to begin the process of identifying and recruiting reviewers.

At the end of this step, any author whose submission is deemed to be acceptable will be invited to submit a full manuscript (understanding, of course, that there is still the chance for manuscript rejection).

Submission of the First Round Manuscript
Date: December 1 2019

The third step will be the submission of any invited manuscript. All invited manuscripts will be subject to review. This will be a dual-blind review with three reviewers per submission. It is understood that all manuscripts must conform the quality standards of the *Journal of Business Logistics.*

Initial First Round Decision
Date: February 28 2020

By this date, the decisions on the manuscripts will be returned. Any manuscript not accepted for the special issue but whose reviews have been generally positive will be referred to the editors of the journal for consideration for submission as a regular manuscript.

Final Comments
The emergence of the digital supply chain offers researchers a rare opportunity to have a significant positive impact on practice. The editors, in their travels across the world and in their meetings with various managers have realized that the digital supply chain poses a challenge to both researcher and practitioner. It is hoped that the submissions for this special issue will go a long way in identifying and addressing the various challenges, opportunities and issues inherent in this new and exciting topic.

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